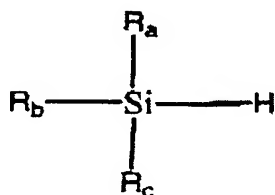


CLAIMS

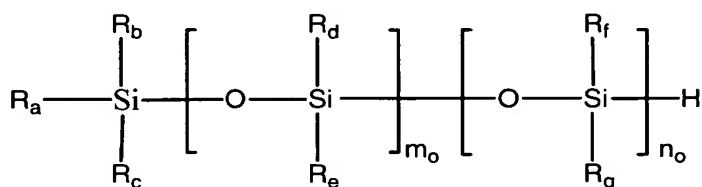
1. Modified poly(ethynylene phenylene ethynylene silylene) polymer obtainable by selective addition of a
5 compound containing only one reactive function on the acetylenic bonds of a poly(ethynylene phenylene ethynylene silylene) polymer.
2. Modified polymer according to Claim 1, in which
10 the said monofunctional compound is chosen from compounds whose sole reactive function is a hydrogen.
3. Modified polymer according to Claim 2, in which
15 the said compound is chosen from monohydrogenated siliceous compounds.
4. Modified polymer according to Claim 3, in which
the said monohydrogenated siliceous compound is a monohydrogenated silane corresponding to the following
20 formula:



in which R_a , R_b and R_c , which may be identical or
25 different, each independently represent an alkyl radical of 1 to 20 C such as a methyl radical, an

alkenyl radical of 2 to 20 C, or an aryl radical of 6 to 20 C such as a phenyl radical.

5. Polymer according to Claim 3, in which the said monohydrogenated siliceous compound is a monohydrogenated siloxane corresponding to the following formula:

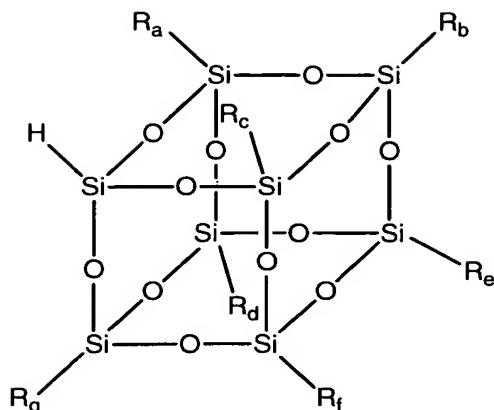


10

in which R_a , R_b , R_c , R_d , R_e , R_f and R_g , which may be identical or different, each independently represent an alkyl radical of 1 to 20 C such as a methyl radical, an alkenyl radical of 2 to 20 C, or an aryl radical of 6 to 20 C such as a phenyl radical, and n_0 and m_0 represent an integer from 0 to 1000.

6. Polymer according to Claim 3, in which the said monohydrogenated siliceous compound is a monohydrogenated silsesquioxane corresponding to the following formula:

20



in which R_a , R_b , R_c , R_d , R_e , R_f and R_g , which may be identical or different, each independently represent an alkyl radical of 1 to 20 C such as a methyl radical, an alkenyl radical of 2 to 20 C, or an aryl radical of 6 to 20 C such as a phenyl radical.

7. Polymer according to any one of Claims 1 to 6, in which the addition is performed in the presence of a catalyst.

8. Polymer according to Claim 7, in which the catalyst is a hydrosilylation reaction catalyst preferably chosen from platinum-based catalysts, such as H_2PtCl_6 , $Pt(DVDS)$, $Pt(TVTS)$, $Pt(dba)$, in which DVDS represents divinyldisiloxane, TVTS represents trivinyltrisiloxane and dba represents dibenzylideneacetone; and transition metal complexes, such as $Rh_6(CO)_{16}$ or $Rh_4(CO)_{12}$, $ClRh(PPh_3)$, $Ir_4(CO)_{12}$ and $Pd(dba)$.

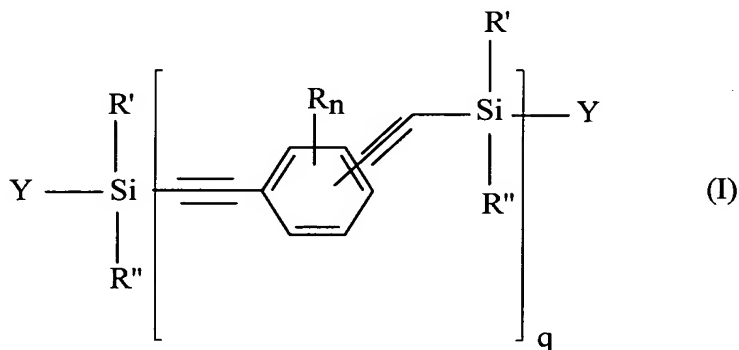
9. Polymer according to any one of the preceding claims, in which the addition is performed at a

temperature of from -20°C to 200°C and preferably from 30 to 150°C .

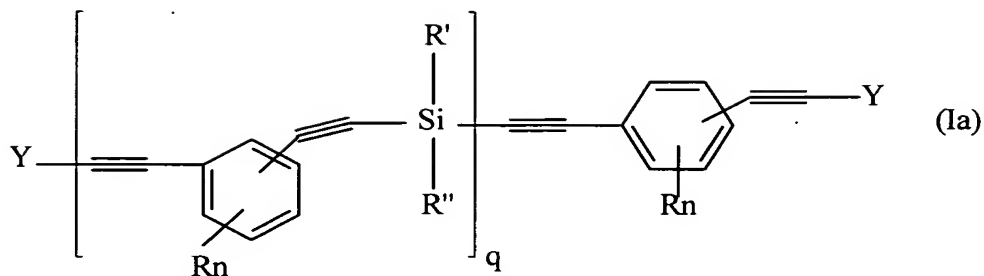
10. Polymer according to any one of the preceding
5 claims, in which the said compound represents from 0.1% to 75%, preferably from 1% to 50% and more preferably from 10% to 40% by mass of the modified polymer.

11. Polymer according to any one of the preceding
10 claims, in which the addition is performed under an atmosphere of an inert gas such as argon.

12. Polymer according to any one of Claims 1 to 11, in
15 which the poly(ethynylene phenylene ethynylene silylene) PEPES polymer corresponds to formula (I) below:



20 or to formula (Ia) below:



in which the phenylene group of the central repeating unit may be in the o, m or p form; R represents a

5 halogen atom (such as F, Cl, Br and I), an alkyl group (linear or branched) containing from 1 to 20 carbon atoms, a cycloalkyl group containing from 3 to 20 carbon atoms (such as methyl, ethyl, propyl, butyl, cyclohexyl), an alkoxy group containing from 1 to 20

10 carbon atoms (such as methoxy, ethoxy, propoxy), an aryl group containing from 6 to 20 carbon atoms (such as a phenyl group), an aryloxy group containing from 6 to 20 carbon atoms (such as a phenoxy group), an alkenyl group (linear or branched) containing from 2 to

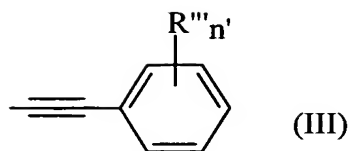
15 20 carbon atoms, a cycloalkenyl group containing from 3 to 20 carbon atoms (such as vinyl, allyl, cyclohexenyl), an alkynyl group containing from 2 to 20 carbon atoms (such as ethynyl, propargyl), an amino group, an amino group substituted with one or two

20 substituents containing from 2 to 20 carbon atoms (such as dimethylamino, diethylamino, ethylmethylamino, methylphenylamino) or a silanyl group containing from 1 to 10 silicon atoms (such as silyl, disilanyl (-Si₂H₅), dimethylsilyl, trimethylsilyl and tetramethyl-

25 disilanyl), one or more hydrogen atoms linked to the carbon atoms of R, may be replaced with halogen atoms

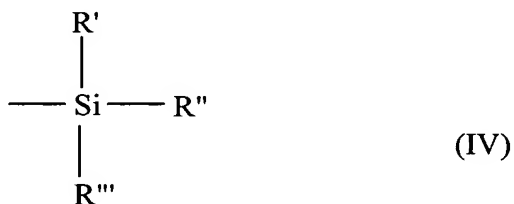
(such as F, Cl, Br and I), alkyl groups, alkoxy groups (such as methoxy, ethoxy and propoxy), aryl groups, aryloxy groups (such as a phenoxy group), amino groups, amino groups substituted with one or two substituents or silanyl groups; n is an integer from 0 to 4 and q is an integer from 1 to 1000, for example from 1 to 40; R' and R'', which may be identical or different, represent a hydrogen atom, an alkyl group containing from 1 to 20 carbon atoms, a cycloalkyl group containing from 3 to 20 carbon atoms, an alkoxy group containing from 1 to 20 carbon atoms, an aryl group containing from 6 to 20 carbon atoms, an aryloxy group containing from 6 to 20 carbon atoms, an alkenyl group containing from 2 to 20 carbon atoms, a cycloalkenyl group containing from 3 to 20 carbon atoms, an alkynyl group containing from 2 to 20 carbon atoms, one or more of the hydrogen atoms linked to the carbon atoms of R' and R'' possibly being replaced with halogen atoms, alkyl groups, alkoxy groups, aryl groups, aryloxy groups, amino groups, disubstituted amino groups or silanyl groups; examples of these groups have already been mentioned above for R; and Y represents a group derived from a chain-limiting agent.

13. Polymer according to Claim 12, in which the PEPES polymer corresponds to formula (I) and Y represents a group of formula (III):



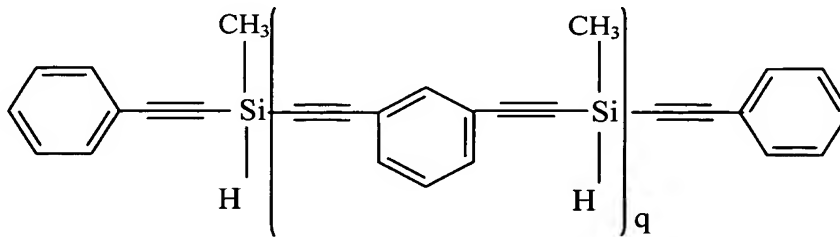
in which R''' has the same meaning as R and may be identical to or different from the latter, and n' has the same meaning as n and may be identical to or different from the latter.

14. Polymer according to Claim 12, in which the PEPES polymer corresponds to formula (Ia) and Y represents a group of formula (IV):



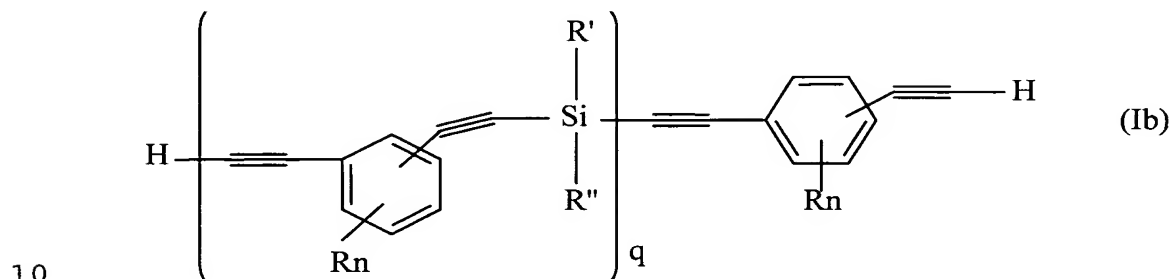
in which R', R'' and R''', which may be identical or different, have the meaning already given in Claim 12 and Claim 13.

15. Polymer according to Claim 12, in which the PEPES polymer corresponds to the following formula:



in which q is an integer from 1 to 1000.

16. Polymer according to Claim 12, in which the PEPES
 5 polymer is a polymer of determined molecular mass,
 which may be obtained (which is obtainable) by
 hydrolysis of a polymer of formula (Ia) and which
 corresponds to formula (Ib) below:



in which R, R', R'', n and q have the meaning already
 given in Claims 12 and 15.

- 15 17. Polymer according to Claim 12, in which the PEPES
 polymer has a molar ratio of the groups Y at the end of
 the chain to the ethynylene phenylene ethynylene
 silylene repeating units of from 0.002 to 2 and
 preferably from 0.1 to 1.

20

18. Polymer according to Claims 12 and 16, in which
 the number-average molecular mass of polymers (I), (Ia)
 and (Ib) is from 400 to 10 000 and preferably from 400
 to 5000, and the weight-average molecular mass is from
 25 600 to 20 000 and preferably from 600 to 10 000.

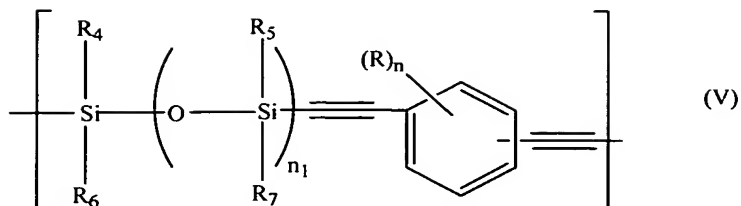
19. Modified polymer according to any one of Claims 1 to 11, in which the poly(ethynylene phenylene ethynylene silylene) (PEPES) polymer is a polymer comprising at least one repeating unit, the said
5 repeating unit comprising two acetylenic bonds, at least one silicon atom and at least one inert spacer group.

20. Polymer according to Claim 19, in which the said
10 polymer also comprises groups (Y) derived from a chain-limiting agent.

21. Polymer according to Claim 19, in which the said inert spacer group of the polymer does not participate
15 during crosslinking.

22. Polymer according to Claim 19, in which the said spacer group(s) of the polymer is (are) chosen from groups comprising several aromatic nuclei linked via at
20 least one covalent bond and/or at least one divalent group, polysiloxane groups, polysilane groups and all possible combinations of two or more of these groups.

23. Polymer according to Claim 19, in which the said
25 PEPES polymer is a polymer comprising a repeating unit of formula (V):



in which the phenylene group of the central repeating unit may be in the o, m or p form; R represents a

5 halogen atom (such as F, Cl, Br and I), an alkyl group (linear or branched) containing from 1 to 20 carbon atoms, a cycloalkyl group containing from 3 to 20 carbon atoms (such as methyl, ethyl, propyl, butyl, cyclohexyl), an alkoxy group containing from 1 to 20

10 carbon atoms (such as methoxy, ethoxy, propoxy), an aryl group containing from 6 to 20 carbon atoms (such as a phenyl group), an aryloxy group containing from 6 to 20 carbon atoms (such as a phenoxy group), an alkenyl group (linear or branched) containing from 2 to

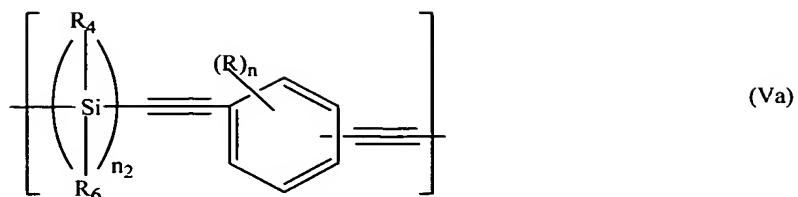
15 20 carbon atoms, a cycloalkenyl group containing from 3 to 20 carbon atoms (such as vinyl, allyl, cyclohexenyl), an alkynyl group containing from 2 to 20 carbon atoms (such as ethynyl, propargyl), an amino group, an amino group substituted with one or two

20 substituents containing from 2 to 20 carbon atoms (such as dimethylamino, diethylamino, ethylmethylamino, methylphenylamino) or a silanyl group containing from 1 to 10 silicon atoms (such as silyl, disilanyl ($-\text{Si}_2\text{H}_5$), dimethylsilyl, trimethylsilyl and tetramethyl-

25 disilanyl), one or more hydrogen atoms linked to the carbon atoms of R, may be replaced with halogen atoms (such as F, Cl, Br and I), alkyl groups, alkoxy groups

(such as methoxy, ethoxy and propoxy), aryl groups, aryloxy groups (such as a phenoxy group), amino groups, amino groups substituted with one or two substituents or silanyl groups; R_4 , R_5 , R_6 and R_7 , which may be identical or different, represent a hydrogen atom; an alkyl group containing from 1 to 20 carbon atoms, a cycloalkyl group containing from 3 to 20 carbon atoms, an alkoxy group containing from 1 to 20 carbon atoms, an aryl group containing from 6 to 20 carbon atoms, an aryloxy group containing from 6 to 20 carbon atoms, an alkenyl group containing from 2 to 20 carbon atoms, a cycloalkenyl group containing from 3 to 20 carbon atoms, an alkynyl group containing from 2 to 20 carbon atoms, one or more of the hydrogen atoms linked to the carbon atoms of R_4 , R_5 , R_6 and R_7 possibly being replaced with halogen atoms, alkyl groups, alkoxy groups, aryl groups, aryloxy groups, amino groups, disubstituted amino groups or silanyl groups; examples of these groups have already been mentioned above for R , n is an integer from 0 to 4, and n_1 is an integer from 1 to 10 and preferably from 1 to 4; this repeating unit is generally repeated n_3 times, with n_3 being an integer, for example from 2 to 1000.

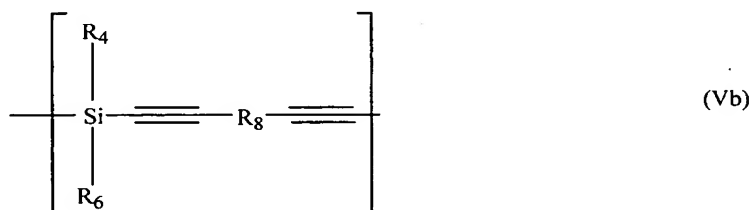
24. Polymer according to Claim 19, in which the said PEPES polymer is a polymer comprising a repeating unit of formula:



in which the phenylene group may be in the o, m or p form, and R, R₄, R₆ and n have the meaning already
 5 given in Claim 23 and n₂ is an integer from 2 to 10.

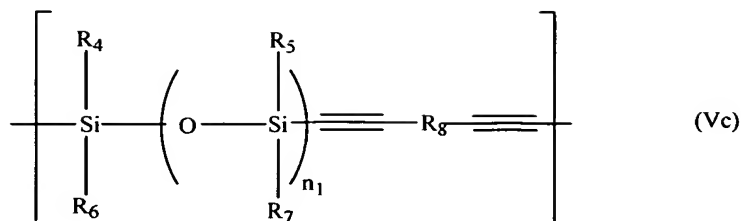
25. Polymer according to Claim 19, in which the said PEPES polymer is a polymer comprising a repeating unit of formula:

10



in which R₄ and R₆ have the meaning already given in Claim 23, and R₈ represents a group comprising at least
 15 two aromatic nuclei comprising, for example, from 6 to 20 C, linked via at least one covalent bond and/or at least one divalent group.

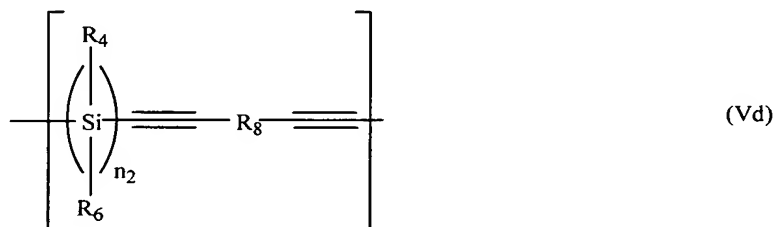
26. Polymer according to Claim 19, in which the said
 20 PEPES polymer is a polymer comprising a repeating unit of formula:



in which R_4 , R_5 , R_6 , R_7 , R_8 and n_1 have the meaning already given in Claims 23 to 25.

5

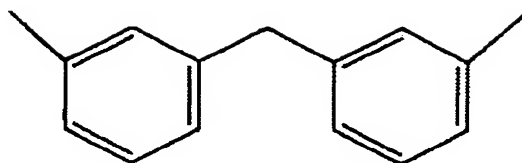
27. Polymer according to Claim 19, in which the said polymer is a polymer comprising a repeating unit of formula:



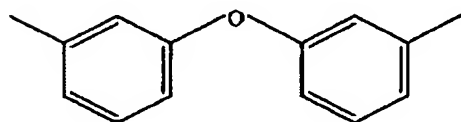
10

in which R_4 , R_6 , R_8 and n_2 have the meaning already given in Claims 23 to 25.

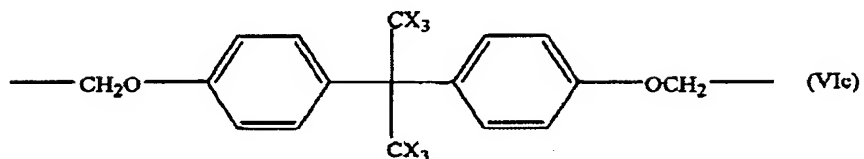
15 28. Polymer according to any one of Claims 25 to 27, in which the group R_8 of the PEPES polymer is chosen from the following groups:



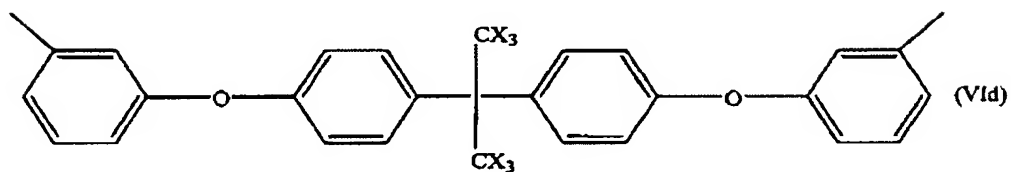
(VIa)



(VIb)



(VIc)



(VIId)

in which X represents a hydrogen atom or a halogen atom
 5 (F, Cl, Br or I).

29. Polymer according to any one of Claims 19 to 28,
 in which the PEPES polymer comprises a repeating unit
 repeated n_3 times, with n_3 being an integer, for
 10 example from 2 to 1000.

30. Polymer according to Claim 19, in which the polymer comprises several different repeating units comprising at least one inert spacer group.

5 31. Polymer according to Claim 30, in which the said repeating units of the polymer, comprising at least one inert spacer group, are chosen from the repeating units of formulae (V), (Va), (Vb), (Vc) and (Vd) defined, respectively, in Claims 23, 24, 25, 26 and 27.

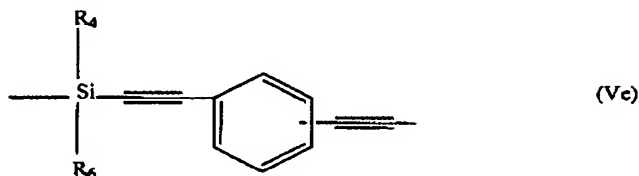
10

32. Polymer according to Claim 31, in which the said repeating units of the polymer are repeated x_1 , x_2 , x_3 , x_4 and x_5 times, respectively, x_1 , x_2 , x_3 , x_4 and x_5 representing integers from 0 to 100 000, on condition
15 that at least two from among x_1 , x_2 , x_3 , x_4 and x_5 are other than 0.

33. Polymer according to any one of Claims 19 to 32, in which the polymer also comprises one or more
20 repeating units not comprising an inert spacer group.

34. Polymer according to Claim 33, in which the said repeating unit of the polymer, which does not comprise an inert spacer group, corresponds to the formula:

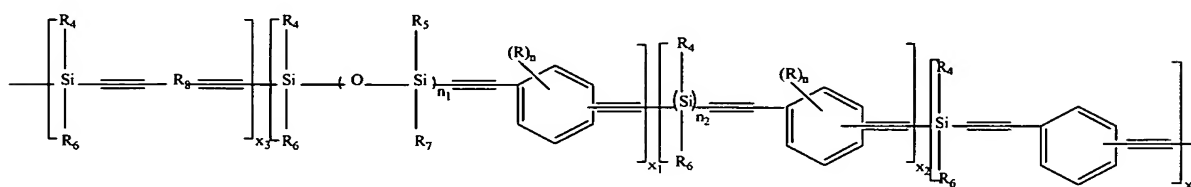
25



35. Polymer according to Claim 33 or 34, in which the said repeating unit of the polymer, not comprising an inert spacer group, is repeated x_6 times, x_6 representing an integer from 0 to 100 000.

5

36. Polymer according to any one of Claims 30 to 35, in which the polymer corresponds to the formula:



(Vf)

10

in which x_1 , x_2 , x_3 and x_6 are as defined, respectively, in Claims 32 and 35, on condition that at least two from among x_1 , x_2 and x_3 are other than 0.

15

37. Polymer according to any one of Claims 30 to 36, in which the polymer has a number-average molecular mass of from 400 to 10 000 and a weight-average molecular mass of from 500 to 1 000 000.

20

38. Process for preparing a modified polymer according to any one of Claims 1 to 37, in which the following successive steps are performed:

a) a poly(ethynylene phenylene ethynylene silylene)

25

(PEPES) polymer is introduced into a reactor;

- b) a compound containing only one reactive function is added to the said PEPES;
- c) the said PEPES and the said compound are mixed together homogeneously;
- 5 a catalyst may optionally be added to the reactor either during step b), in the form of a mixture of the catalyst and of the compound containing only one reactive function, or after step c);
- d) the compound, the PEPES and the optional catalyst
10 are left in contact until the selective addition of the compound containing only one reactive function to the acetylenic bonds of the PEPES polymer is complete;
- e) the modified polymer thus formed is recovered.

15

39. Process according to Claim 38, in which the said compound containing only one reactive function is a compound as defined in any one of Claims 2 to 6.

- 20 40. Process according to Claim 38 or Claim 39, in which a catalyst is added to the reactor, either during step b) in the form of a mixture of the catalyst and of the compound containing only one reactive function, or to the mixture of the PEPES and of the compound
25 containing only one reactive function after step c).

41. Process according to Claim 40, in which the said catalyst is a hydrosilylation reaction catalyst preferably chosen from platinum-based catalysts, such
30 as H_2PtCl_6 , $\text{Pt}(\text{DVDS})$, $\text{Pt}(\text{TVTS})$, $\text{Pt}(\text{dba})$, in which DVDS represents divinyldisiloxane, TVTS represents

trivinyltrisiloxane and dba represents dibenzylidene-acetone; and transition metal complexes, such as $\text{Rh}_6(\text{CO})_{16}$ or $\text{Rh}_4(\text{CO})_{12}$, $\text{ClRh}(\text{PPh}_3)$, $\text{Ir}_4(\text{CO})_{12}$ and $\text{Pd}(\text{dba})$.

5 42. Process according to any one of Claims 38 to 41, in which the said poly(ethynylene phenylene ethynylene silylene) polymer is as defined in one of Claims 12 to 37.

10 43. Process according to any one of Claims 38 to 42, in which steps b) to c) and d) are performed with stirring.

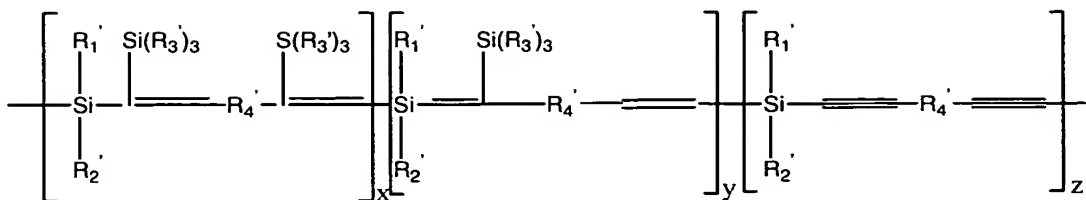
15 44. Process according to any one of the preceding claims, in which the process is performed at a temperature of from -20°C to 200°C .

20 45. Process according to any one of Claims 38 to 44, in which the process is performed under an atmosphere of an inert gas such as argon.

25 46. Process according to any one of Claims 38 to 45, in which, in step d), the PEPES, the compound and the optional catalyst are left in contact for a time of from 0.1 to 24 hours, preferably from 0.5 to 8 hours and more preferably from 2 to 6 hours.

30 47. Composition comprising a poly(ethynylene phenylene ethynylene silylene) polymer, a compound containing only one reactive function and, optionally, a catalyst.

48. Composition according to Claim 47, in which the said compound containing only one reactive function is a compound as defined in any one of Claims 2 to 6.
- 5 49. Composition according to Claim 47 or Claim 48, in which the said poly(ethynylene phenylene ethynylene silylene) polymer is as defined in any one of Claims 12 to 37.
- 10 50. Composition according to any one of Claims 47 to 49, in which the said catalyst is a hydrosilylation reaction catalyst preferably chosen from platinum-based catalysts, such as H_2PtCl_6 , $\text{Pt}(\text{DVDS})$, $\text{Pt}(\text{TVTS})$, $\text{Pt}(\text{dba})$, in which DVDS represents divinyldisiloxane, 15 TVTS represents trivinyltrisiloxane and dba represents dibenzylideneacetone; and transition metal complexes, such as $\text{Rh}_6(\text{CO})_{16}$ or $\text{Rh}_4(\text{CO})_{12}$, $\text{ClRh}(\text{PPh})_3$, $\text{Ir}_4(\text{CO})_{12}$ and $\text{Pd}(\text{dba})$.
- 20 51. Composition according to any one of Claims 47 to 50, which comprises from 1% to 99% by mass of poly(ethynylene phenylene ethynylene silylene) polymer, from 1% to 50% by mass of compound containing only one reactive function and, optionally, from 0 to 1% by mass 25 of catalyst.
52. Modified poly(ethynylene phenylene ethynylene silylene) polymer corresponding to formula (VII) below:



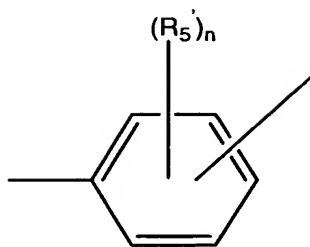
(VII)

in which R_1' and R_2' , which may be identical or
 5 different, represent a hydrogen atom, an alkyl group
 containing from 1 to 20 carbon atoms, a cycloalkyl
 group containing from 3 to 20 carbon atoms, an alkoxy
 group containing from 1 to 20 carbon atoms, an aryl
 group containing from 6 to 20 carbon atoms, an aryloxy
 10 group containing from 6 to 20 carbon atoms, an alkenyl
 group containing from 2 to 20 carbon atoms, a cyclo-
 alkenyl group containing from 3 to 20 carbon atoms, an
 alkynyl group containing from 2 to 20 carbon atoms, one
 or more of the hydrogen atoms linked to the carbon
 15 atoms of R_1' and R_2' may be replaced with halogen
 atoms, alkyl groups, alkoxy groups, aryl groups,
 aryloxy groups, amino groups, disubstituted amino
 groups or silanyl groups;

20 R_3' represents an alkyl radical of 1 to 20 C such as a
 methyl radical, an alkenyl radical of 10 to 20 C, or an
 aryl radical of 6 to 20 C such as a phenyl radical; and

R_4' represents:

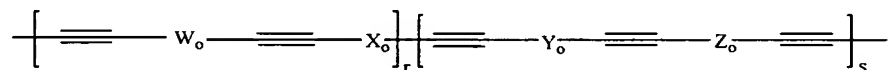
25



in which the phenylene group may be in the o, m or p
 5 form and in which R_5' represents a halogen atom (such
 as F, Cl, Br and I), a (linear or branched) alkyl group
 containing from 1 to 20 carbon atoms, a cycloalkyl
 group containing from 3 to 20 carbon atoms (such as
 methyl, ethyl, propyl, butyl, cyclohexyl), an alkoxy
 10 group containing from 1 to 20 carbon atoms (such as
 methoxy, ethoxy, propoxy), an aryl group containing
 from 6 to 20 carbon atoms (such as a phenyl group), an
 aryloxy group containing from 6 to 20 carbon atoms
 (such as a phenoxy group), a (linear or branched)
 15 alkenyl group containing from 2 to 20 carbon atoms, a
 cycloalkenyl group containing from 3 to 20 carbon atoms
 (such as vinyl, allyl, cyclohexenyl), an alkynyl group
 containing from 2 to 20 carbon atoms (such as ethynyl,
 propargyl), an amino group, an amino group substituted
 20 with one or two substituents containing from 2 to 20
 carbon atoms (such as dimethylamino, diethylamino,
 ethylmethylamino, methylphenylamino) or a silanyl group
 containing from 1 to 10 silicon atoms (such as silyl,
 disilanyl ($-\text{Si}_2\text{H}_5$), dimethylsilyl, trimethylsilyl and
 25 tetramethyldisilanyl), one or more hydrogen atoms
 linked to the carbon atoms of R possibly being replaced
 with halogen atoms (such as F, Cl, Br and I), alkyl

groups, alkoxy groups (such as methoxy, ethoxy and propoxy), aryl groups, aryloxy groups (such as a phenoxy group), amino groups, amino groups substituted with one or two substituents, or silanyl groups; n is
 5 an integer from 0 to 4; or R₄' represents a group containing at least two aromatic nuclei comprising, for example, from 6 to 20 C, linked via at least one covalent bond and/or at least one divalent group; and x and y and z represent, respectively, integers between
 10 0 and 1000.

53. Polymer corresponding to the following formula:



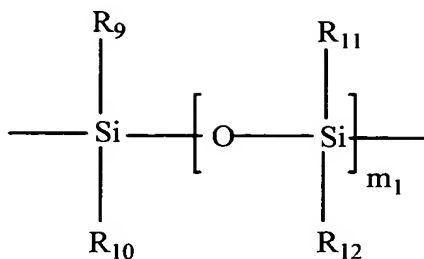
15

in which:

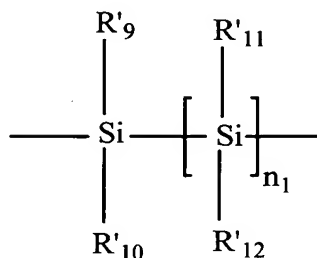
- r and s are integers from 1 to 1000;
- 20 - X_o and Z_o, which may be identical or different, each independently represent a group α₁, a group α₂ or a combination of these groups:

- in which α₁ represents:

25



- α_2 represents:



5

in which:

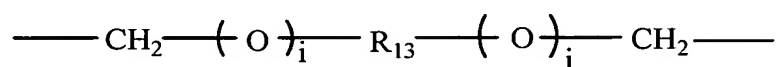
- m_1 and n_1 are integers generally between 1 and 1000 and preferably between 1 and 10;

R_9 , R_{11} , R_{12} , R'_9 , R'_{10} , R'_{11} and R'_{12} , which may be identical or different, each independently represent a hydrogen atom, an alkyl group containing from 1 to 20 carbon atoms, an alkenyl group containing from 2 to 20 carbon atoms, an alkynyl group containing from 2 to 20 carbon atoms or an aryl group containing from 6 to 20 carbon atoms, the hydrogen atoms linked to the carbon atoms of R_9 , R_{10} , R_{11} and R_{12} and R'_9 , R'_{10} , R'_{11} and R'_{12} possibly being partially or totally replaced with halogen atoms, alkoxy groups, phenoxy groups, disubstituted amino groups or silanyl groups;

- W_o and Y_o , which may be identical or different, each independently represent a group B_1 , a group B_2 , a group B_3 or a combination of these groups:

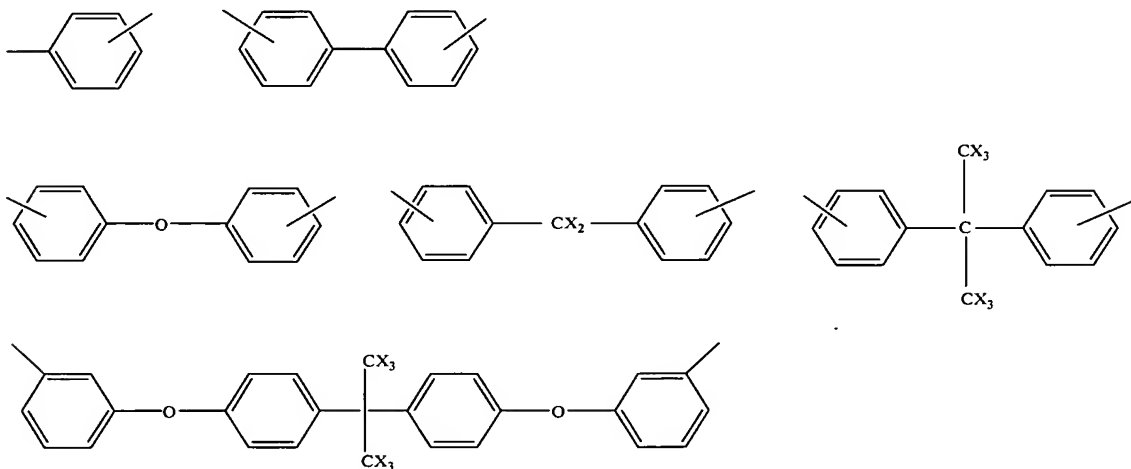
5

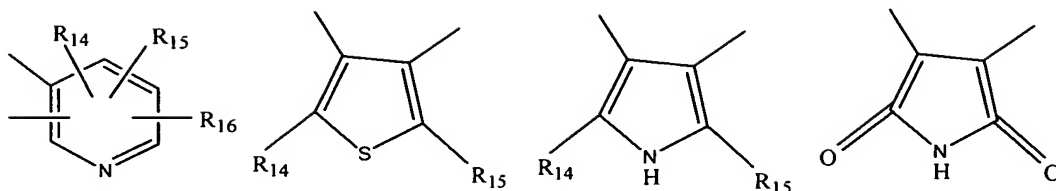
- B_1 represents:



10 in which i is an integer equal to 0 or 1 and the group R_{13} represents any divalent chemical group comprising one or more aromatic or heterocyclic rings or nuclei; preferably, the group R_{13} is chosen from the following groups:

15

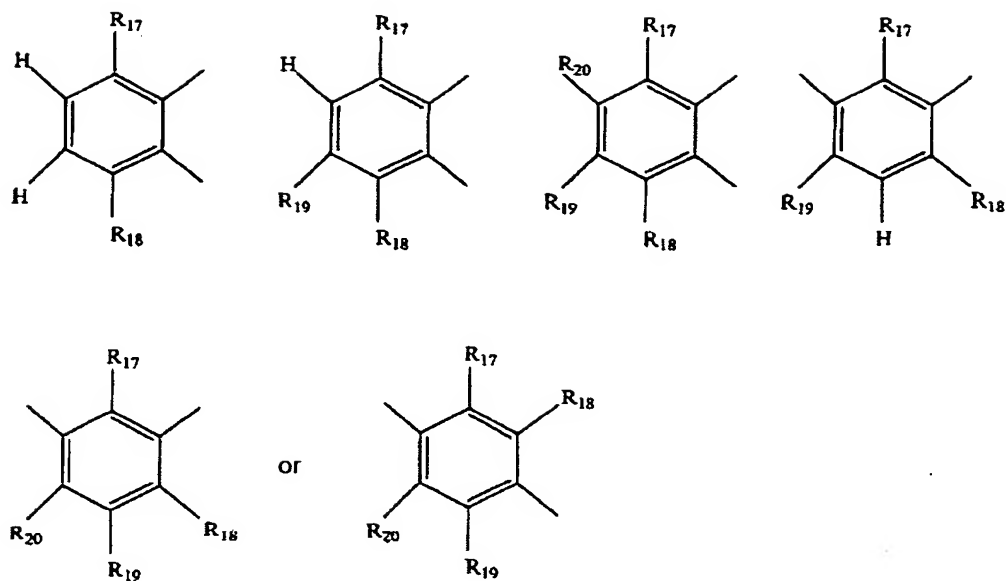




in which X represents a hydrogen atom or a halogen (F,
 5 Cl, Br or I);

and in which R₁₄, R₁₅ and R₁₆, which may be identical or
 different, have the same meaning as R₉ and each
 independently represent a hydrogen atom, an alkyl group
 10 containing from 1 to 20 carbon atoms, an alkenyl group
 containing from 2 to 20 carbon atoms, an alkynyl group
 containing from 2 to 20 carbon atoms or an aryl group
 containing from 6 to 20 carbon atoms, the hydrogen
 atoms linked to the carbon atoms of R₁₄, R₁₅ and R₁₆
 15 possibly being partially or totally replaced with
 halogen atoms, alkoxy groups, phenoxy groups, disubsti-
 tuted amino groups or silanyl groups;

- B₂ represents:

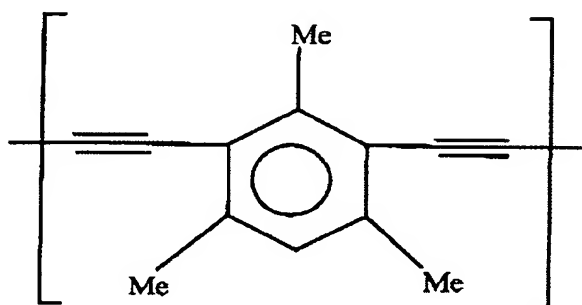


- in which R_{17} , R_{18} , R_{19} and R_{20} , which may be identical or different, each independently represent a halogen atom, an alkyl group containing from 1 to 20 carbon atoms, an alkoxy group containing from 1 to 20 carbon atoms, a phenoxy group containing from 6 to 20 carbon atoms, an aryl group containing from 6 to 20 carbon atoms, a substituted amino group containing from 2 to 20 carbon atoms or a silanyl group containing from 1 to 10 carbon atoms, the hydrogen atoms linked to the carbon atoms of the substituents R_{17} , R_{18} , R_{19} and R_{20} possibly being totally or partially replaced with halogen atoms, alkoxy groups, phenoxy groups, disubstituted amino groups or silanyl groups;

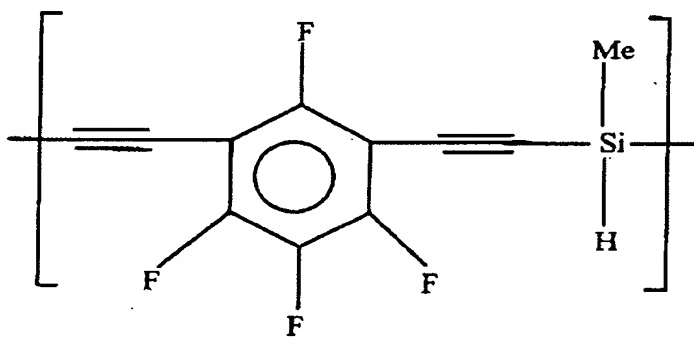
- B_3 represents:

a group chosen from divalent heterocycles such as those defined in the context of the definition of the group R_{13} of B_1 .

- 5 54. Polymer according to Claim 53, the repeating unit of which corresponds to the formula:



- 10 55. Polymer according to Claim 53, the repeating unit of which corresponds to the formula:



- 15 56. Cured product that may be obtained (that is obtainable) by heat treatment at a temperature of from 50 to 500°C of the modified polymer according to any

one of Claims 1 to 37 and 52 to 55, optionally in the presence of a catalyst.

57. Composite matrix comprising the polymer according
5 to any one of Claims 1 to 37 and 52 to 55.